## AMENDMENTS TO THE CLAIMS

## IN THE CLAIMS:

A complete set of claims is provided below.

Please amend Claims 1, 2, 10, 12, 23, and 28 as shown below:

1.      (Currently Amended)  A method of data compression, comprising:

partitioning a first set of basis functions into groups, each group corresponding to a region, each basis function corresponding to one unknown in a system of linear equations, each of said basis functions corresponding to an original source;

selecting a plurality of spherical angles;

**using a computer system**, calculating a far-field disturbance produced by each of said basis functions in a first group for each of said spherical angles to produce a matrix of transmitted disturbances;

reducing a rank of said matrix of transmitted disturbances to yield a second set of basis functions, said second set of basis functions corresponding to composite sources, each of said composite sources comprising a linear combination of one or more of said original basis functions;

partitioning a first set of weighting functions into groups, each group corresponding to one of said regions, each weighting function corresponding to a condition, each of said weighting functions corresponding to an original tester;

**using a computer system**, calculating a far-field disturbance received by each of said testers in a first group for each of said spherical angles to produce a matrix of received disturbances;

reducing a rank of said matrix of received disturbances to yield a second set of weighting functions, said second set of weighting functions corresponding to composite testers, each of said composite testers comprising a linear combination of one or more of said original testers; and

transforming said system of linear equations to use said composite sources and said composite testers.

2.      (Currently Amended)  A method of data compression, comprising:

partitioning a first set of basis functions into groups, each group corresponding to a region, each basis function corresponding to an unknown in a system of equations, each of said basis functions corresponding to an original source;

selecting a first plurality of angular directions;

**using a computer system**, calculating a disturbance produced by each of said basis functions in a first group for each of said angular directions to produce a matrix of disturbances;

using said matrix of disturbances to compute a second set of basis functions, said second set of basis functions corresponding to composite sources, wherein at least one of said composite sources produces a relatively weak disturbance from a portion of space around said at least one composite source;

partitioning a first set of weighting functions into groups, each group corresponding one of said regions, each weighting function corresponding to a condition, each of said weighting functions corresponding to an original tester;

**using a computer system**, calculating a disturbance received by each of said testers in a second plurality of angular directions to produce a matrix of received disturbances;

using said matrix of received disturbances to compute a second set of weighting functions, said second set of weighting functions corresponding to composite testers, wherein at least one of said composite testers weakly receives disturbances from a portion of space relative to said at least one composite tester; and

transforming at least a portion of said system of equations to use one or more of said composite sources and one or more of said composite testers.

3.    (Original)    The method of Claim 2, wherein said matrix of disturbances is a moment method matrix.

4.    (Original)    The method of Claim 2, wherein said step of using said matrix of disturbances to compute a second set of basis functions comprises reducing a rank of said matrix of disturbances.

5.    (Original)    The method of Claim 2, wherein said step of using said matrix of received disturbances to compute a second set of weighting functions comprises reducing a rank of said matrix of received disturbances.

6.    (Original)    The method of Claim 2, wherein said disturbance is at least one of an electromagnetic field, a heat flux, an electric field, a magnetic field, a vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, a strong nuclear force, and a gravity force.

7.    (Original)    The method of Claim 2, wherein said first plurality of directions is substantially the same as said second plurality of directions.

8.    (Original)    The method of Claim 2, wherein said regions of space around said at least one composite source are far-field regions.

9.    (Original)    The method of Claim 2, wherein said at least a portion of a region around said at least one composite tester is a far-field region.

10.    (Currently Amended)    A method of data compression, comprising:

calculating one or more composite sources as a linear combination of one or more basis functions, wherein at least one of said composite sources produces a relatively weak disturbance in a portion of space related to said at least one composite source;

**using a computer system**, calculating one or more composite testers as a linear combination of one or more weighting functions, wherein at least one of said composite testers is affected relatively weakly by disturbances propagating from a portion of space around said at least one composite tester; and

transforming at least a portion of a first system of equations based on said basis functions and said weighting functions into a second system of equations based on said composite sources and said composite testers.

11.    (Original)    The method of Claim 10, wherein said disturbance is at least one of, an electromagnetic field, a heat flux, an electric field, a magnetic field, vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, strong nuclear force, and a gravity force.

12.    (Currently Amended)    The method of Claim 10, wherein said ~~basis~~ composite sources comprise electric currents.

13.    (Original)    The method of Claim 10, wherein said composite sources comprise magnetic currents.

14.    (Original)    The method of Claim 10, wherein said composite sources comprise acoustic sources.

15. (Original) The method of Claim 10, wherein said composite sources comprise electromagnetic sources.

16. (Original) The method of Claim 10, wherein said composite sources comprise thermal sources.

17. (Original) The method of Claim 10, wherein each of said composite sources corresponds to a region.

18. (Original) The method of Claim 10, wherein said second system of equations is described by a sparse block diagonal matrix.

19. (Original) The method of Claim 18, further comprising the step of reordering said sparse block diagonal matrix to shift relatively larger entries in said matrix towards a desired corner of said matrix.

20. (Original) The method of Claim 10, further comprising the step of solving said second system of equations.

21. (Original) The method of Claim 10, further comprising the step of solving said second system of equations to produce a first solution vector, said first solution vector expressed in terms of said composite testers.

22. (Original) The method of Claim 21, further comprising the step of transforming said first solution vector into a second solution vector, said second solution vector expressed in terms of said weighting functions.

23. (Currently Amended) A method, comprising:

calculating at least one composite source, said composite source representing energy sources;

**using a computer system**, calculating at least one composite tester; and

transforming at least a portion of a first system of linear equations into a second system of linear equations based at least on said at least one composite source and said at least one composite tester.

24. (Original) The method of Claim 23, wherein said at least one composite source represents a linear combination of one or more energy sources such that said at least one composite source radiates relatively little energy into a portion of angular region disposed about said at least one source.

25.   (Original)   The method of Claim 23, wherein said at least one composite tester is affected relatively weakly by energy propagating from a portion of space around said at least one composite tester.

26.   (Original)   The method of Claim 23, wherein said second system of linear equations is represented by a block sparse matrix.

27.   (Original)   An apparatus comprising:

means for calculating at least one composite source;

means for calculating at least one composite tester; and

means for transforming at least a portion of a first system of equations into a second system of equations based at least on said at least one composite source and said at least one composite tester.

28.   (Currently Amended)   A method of data compression, comprising:

calculating one or more composite sources as a combination of one or more basis functions, wherein at least one of said composite sources produces a relatively weak product in a portion of space;

**using a computer system**, calculating one or more composite testers as a combination of one or more weighting functions, wherein at least one of said composite testers interacts relatively weakly with said at least one composite tester; and

transforming at least a portion of a first array of interaction data based on said basis functions and said weighting functions into a second array of interaction data based on said composite sources and said composite testers.

29.   (Original)   The method of Claim 28, wherein said disturbance is at least one of, an electromagnetic field, a heat flux, an electric field, a magnetic field, vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, strong nuclear force, a gravity force, and an image element.

30.   (Original)   The method of Claim 28, wherein each of said composite sources corresponds to a region.

31.   (Original)   The method of Claim 28, wherein said second array of interaction data is described by a sparse block diagonal matrix.

32. (Original) The method of Claim 28, further comprising the step of using said second array of interaction data to compute a first solution vector, said first solution vector expressed in terms of said composite testers.

33. (Original) The method of Claim 32, further comprising the step of transforming said first solution vector into a second solution vector, said second solution vector expressed in terms of said weighting functions.